

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



June 2021

Executive Summary

	Green	Yellow	Red
Headworks			
Oxidation Ditch			
Filters			
Generator			
Weather			
Solids Handling			
NPDES Parameters			
Lift Stations			
Personnel			
Safety			
Compliance			

(New information in bold font)

- **Headworks-A meeting with Inframark, BPW, Keystone and the vendor to discuss the Equalization Pump control panel replacement project is scheduled for 7-26-2021. Inframark requested a turnkey proposal for the rebuild of both the 2mm and 5mm screeners from Sherwood Logan. A representative from Sherwood Logan was onsite 7-9-2021. Inframark has piped up a temporary solution utilizing a dewatering roll off container.**
- Filters- UF Train 4 de-ragged and returned to service 3-8-2021. UF Train 1 de-ragged and returned to service 4-19-2021. De-ragging of UF Train 2 complete 5-28-2021. **UF Train 3 de-ragged and returned to service 7-21-2021.**
- Pump stations are being checked, evaluated and tested.
- Our Health and Safety advisor completed a plant wide audit. Audit items continue to be addressed as time allows. No critical issues exist currently.

Critical Issues

- Covid- Inframark is following CDC recommendations to ensure uninterrupted service to the BPW and the Lewes community.
- Condition of headworks screening equipment is in critical need of repair to decrease excessive ragging of UF membranes.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Rebuild band-screens	Waiting on quote from Sherwood Logan	High	BPW Project	QTR1 2022
Replace Lipactor with compactor	GMB made site visit to plant 5/5/2021	High	BPW Project	QTR1 2022
Replace EQ Pump Drives and Control Panel	Project meeting scheduled for 7-26-2021	High	BPW Project	QTR4 2021

Clean Membranes	All trains cleaned one time 2021	High	NA	ongoing
Pump Station Evaluation	We are developing a Pump Station asset list and evaluation	High	NA	2021

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for June 2021. No violations will be reported for June. The DMR will be forwarded upon completion.
- The average daily influent flow for June was 0.873 MGD with a maximum daily flow of 1.140 MGD. Precipitation totaled 3.8 inches for June with a maximum daily total of 1.0 inches.

	Max	Sum
Precipitation (inches)	1.00	3.79

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.873	0.580	1.140	
BOD (mg/L)		315	315	315	
BOD Load (lbs)		1,605	1,605	1,605	
TSS (mg/L)		477	477	477	
TSS Load (lbs)		2,431	2,431	2,431	
Effluent					
Flow (MGD)		0.911	0.000	1.968	N
Dissolved Oxygen (mg/L)		4.33	2.46	7.54	N
pH (SU)	Min 6/ Max 9	7.31	6.89	7.52	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<2	<1.0	35.8	N
BOD (mg/L)	Avg 15/ Max 23	<2.4	<2.4	<2.4	N
BOD Load (lbs)	Avg 188/ Max 288	<17	<13	<20	N
BOD Removal (%)		99.2	99.2	99.2	
TSS (mg/L)	Avg 15/ Max 23	<0.6	<0.5	<1.0	N
TSS Load (lbs)	Avg 188/ Max 288	<5	3	<7	N
TSS Removal (%)		100	100	100	
Total Nitrogen (mg/L)	Avg 8	3.52	3.52	3.52	N
Total Nitrogen Load (lbs)	Avg 100	14.51	14.51	14.51	N
Total Phosphorous (mg/L)	Avg 2	1.52	1.52	1.52	N
Total Phosphorous Load (lbs)	Avg 25	8.23	8.23	8.23	N
Process					
Bio #1 MLSS (mg/L)		10,202	8,610	12,000	
Bio #2 MLSS (mg/L)		10,056	7,990	12,010	
Train 1 MLSS (mg/L)		12,176	7,720	15,800	
Train 2 MLSS (mg/L)		11,410	7,740	13,540	

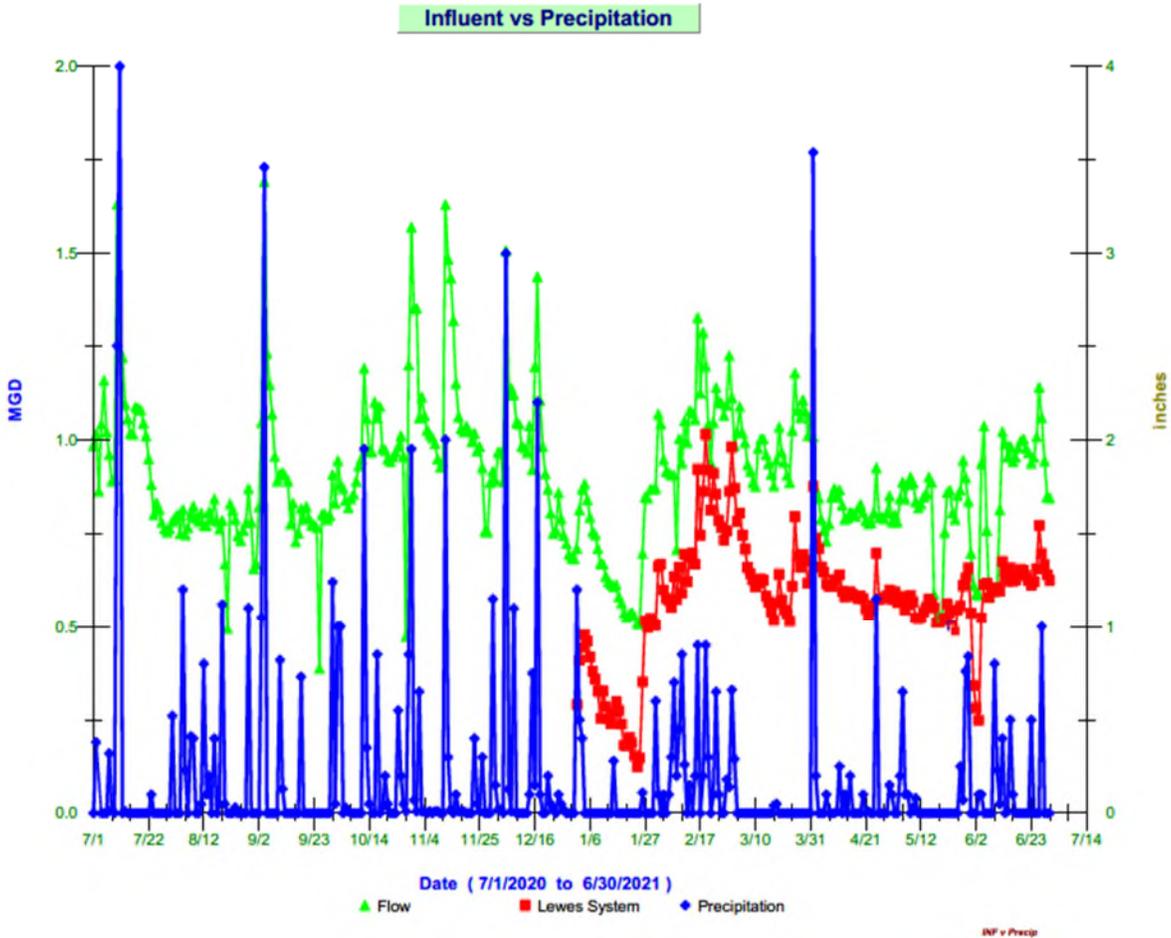
Train 3 MLSS (mg/L)		10,205	8,830	11,580	
Train 4 MLSS (mg/L)		10,590	8,540	12,940	
TSS Digester 1 (mg/L)		21,982	20,240	24,150	
TSS Digester 2 (mg/L)		23,534	22,930	24,200	

Sludge Operations and Disposal

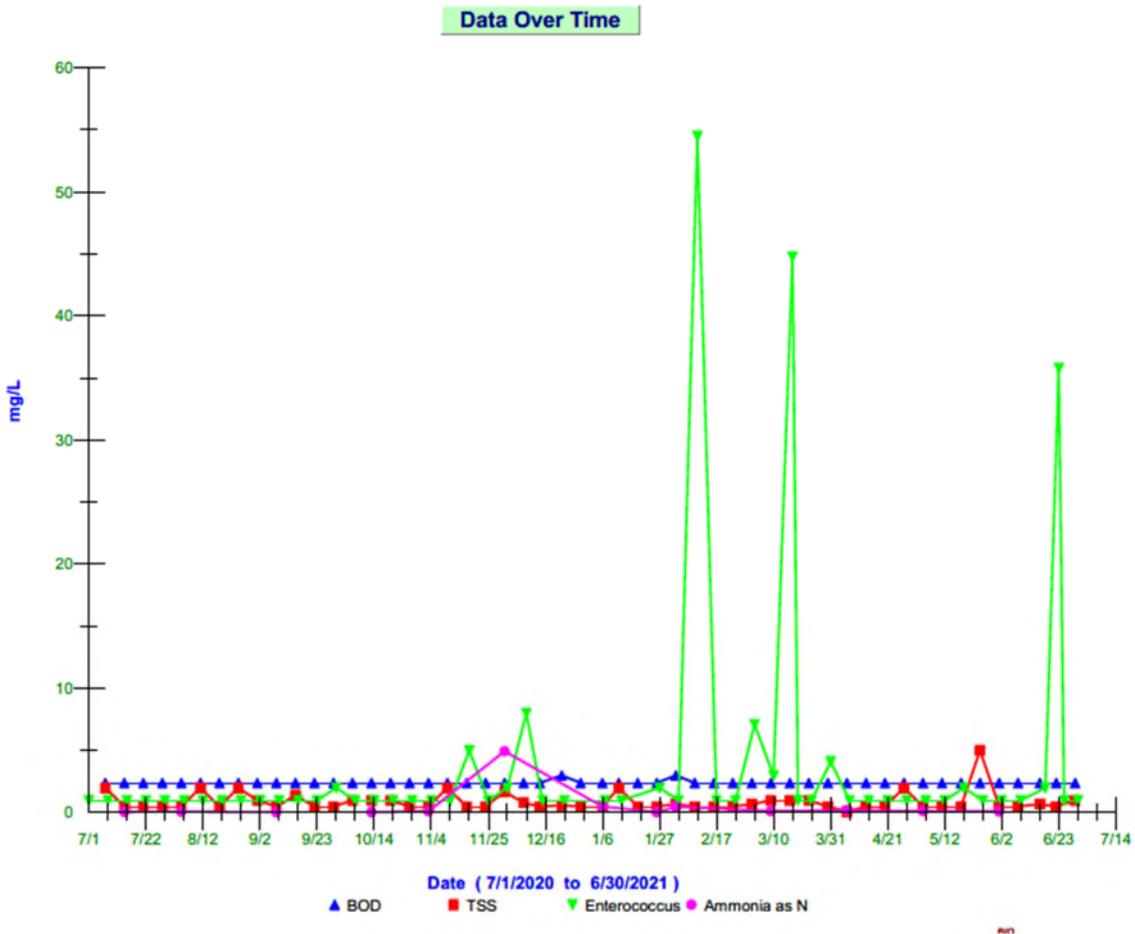
Liquid Hauled	60,600	Gallons	DELCORA
Cake Hauled	62.5	Wet Tons	Sussex County

Trends

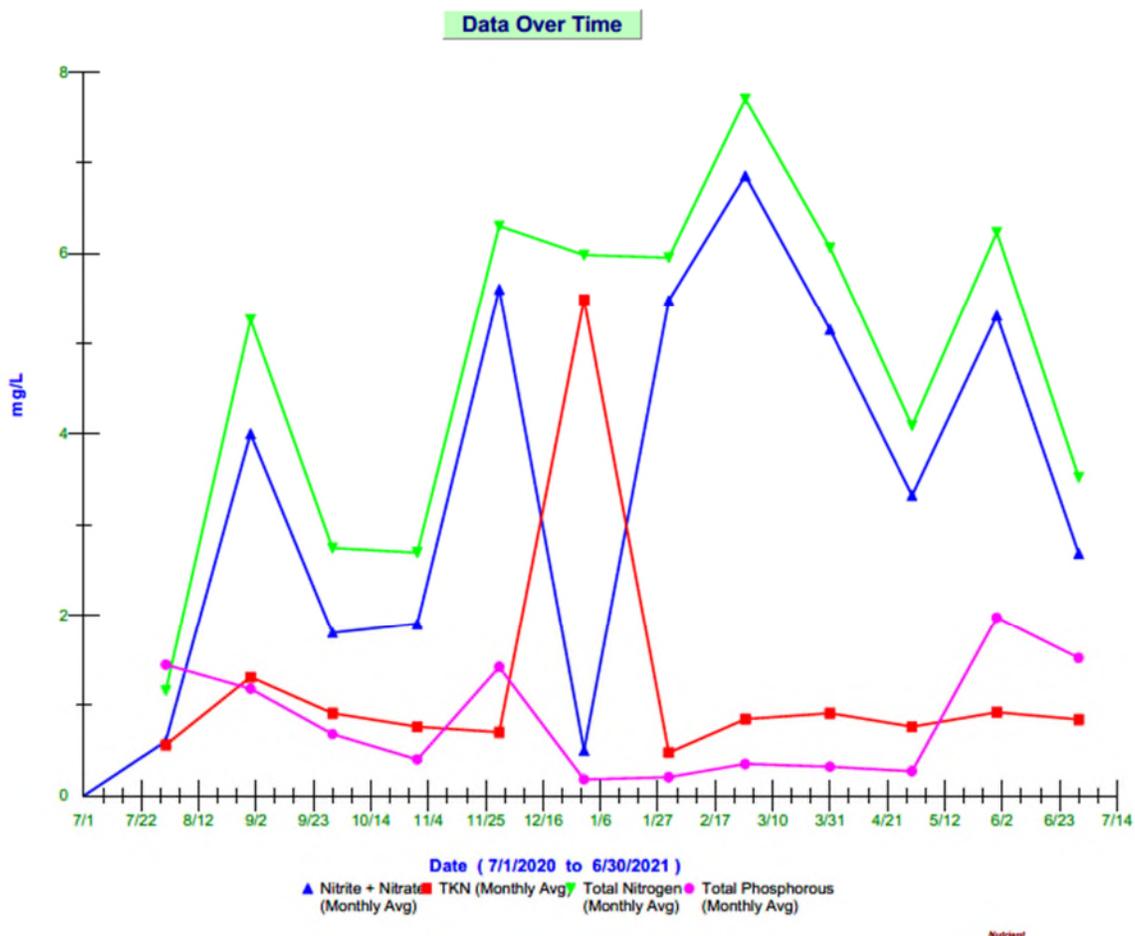
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

Pump Stations

- 6/4/2021 Troubleshoot PS4 Pump 1 clogged with rags both inside of check valve and also in suction line. Unclogged check valve.
- 6/11/2021 PS4 wet well cleaning and unclogging of suction line of Pump 1
- 6/18/2021 Station 19 cleaned. Replace 5 floats
- 6/30/2021 Pulled pumps at PS9, PS10, PS13, PS14

WWTP

- 6/1/2021 Replaced thermometers in 2 samplers and 1 lab refrigerators
Replaced Post Anoxic Mixer with spare
Performed pump test on all 4 Zenon Train RAS Pumps
- 6/3/2021 Replaced 2mm Screen MACI Pump and motor

Influent EQ pump 3 VFD troubleshooting. Drive not functioning set up for bypass control operation of pumps.

6-/4/2021 Function test PISTA grit system, flushed line and clean filters
Cleaned DO probes in aeration basin
Influent EQ pump 3 VFD troubleshooting

6/6/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen 5 times

6/7/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Replaced temporary 2mm screen pump
Started tank cleaning in preparation of UF Train 3 membrane cleaning

6/8/2021 K&Z started digester thickener membrane cleaning
Cleaned dump pit screen

6/9/2021 Function test PISTA grit system flush line and clean filters
Replaced belts on bio-train Blower 3
Influent EQ pump 3 VFD replacement completed by Keystone

6/10/2021 Check 2mm screen temporary screenings pump and clean bar-screen
Check 2mm screen temporary screenings pump and clean bar-screen
Chemical cleaning of Digester Membranes
Troubleshoot 2mm screen drive motor malfunction. Reset overload

6/11/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen

6/12/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Power loss, reset pumps and mixers
Cleaned out 2mm screenings basin

6/13/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen 3 times including afterhours callout.

6/14/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Function test PISTA grit system flush line and clean filters

6/15/2021 SPCC inspection
Function test PISTA grit system flush line and clean filters
Dauphin electric on site to evaluate 2mm screen drive motor overload
Setup temporary screening dumpster plumbing and pumps
Dauphin electric on site removed overload from the offline 5mm screen and replaced to the failed 2mm screen controls

6/16/2021 Function test PISTA grit system flush line and clean filters

6/17/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Unclog grit screw settling tank and overflow of excess screening debris

6/18/2021 Clean out dump pit and replace screen
Check 2mm screen temporary screenings pump and clean bar-screen

6/20/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen reset breaker

6/21/2021 K&Z started UF Train 3 membrane cleaning
Unclog 2mm screen temporary screenings pump and clean bar-screen
Checked blower belts

6/22/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Replaced fuel filter on forklift
Replaced blower belts on Bio-train blowers 1&2
Conference with Suez regarding programing changes for optimization of membrane system
Cleaned 2mm screen temporary screenings pump and clean bar-screen

6/23/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Unclog 2mm screen temporary screenings pump and clean bar-screen

6/24/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen

6/25/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Replace hydraulic fitting on skid loader

6/26/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen

6/27/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen 3 times
Function test PISTA grit system flush line and clean filters

6/28/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen 3 times
Function test PISTA grit system flush line and clean filters
Inspection of skid loader and forklift

6/29/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Function test PISTA grit system flush line and clean filters
Clean filter on Bio-train Blower 3

6/30/2021 Unclog 2mm screen temporary screenings pump and clean bar-screen
Function test PISTA grit system flush line and clean filters Afterhours Alarm

Callouts

6/5/2021 UF Train 4 low level

6/7/2021 UF Train 4 low permeate flow

6/12/2021 2 mm screener high level

6/14/2021 2 mm screener high level

6/15/2021 2 mm screener high level

6/15/2021 2 mm screener high level (2nd)

6/17/2021 PS2 high level

6/19/2021 PS19 high level

6/20/2021 Digester trouble

6/21/2021 Bio-train low level

6/23/2021 UF Trains high level

6/28/2021 Digester trouble

Maintenance Budget

Monthly Budget	June Expenses 2021	Contract Year to Date	Remaining Balance
\$7,500	\$ 31,600	\$ 132,113	\$ (42,113)

Maintenance Expenditures

Vendor	Description	Expense
AMAZON	Lab supplies for sieve test	124.41
AMAZON	Lovejoy coupling insert	11.99
BESTS ACE HDWE	Fittings for unclogging PS4	33.13
BESTS ACE HDWE	Lime	41.94
BESTS ACE HDWE	(2) 2-inch brass ball valves	119.98
CORE & MAIN	PS4 clogging repair	108.38
DWYER INSTRUMENTS, INC	MCP Jr Pump Controller	450.76
EASTERN LIFT TRUCK	Forklift repair	73.84

FISHER AUTO PARTS	Tools needed for 2 mm screen pump replacement	95.14
Freemire & Associates, Inc.	Station #25 serviced travel & labor	1,137.98
GRAINGER	Cam fitting	10.22
GRAINGER	Gas operated utility pump and fittings	2,189.02
GRAINGER	Level pressure transducer 5mm Screener	605.57
GRAINGER	Bulkhead and cam fittings for screening dewatering	156.80
GRAINGER	Blower belts	2,147.81
GRAINGER	Sewer dye	125.77
HARBOR FREIGHT TOOLS	Containment for belt filter press	99.99
HARRY CASWELL INC	PS4 cleaning vac truck service	386.06
Hill's Electric Motor Service Inc	Rebuild PS4 pump 1 parts and labor	5,030.28
HITCHENS TIRE SERVICE	Skid loader tire repair	95.00
HOMEDEPOT.COM	PS4 repairs	579.00
K & Z Mechanical, Inc.	Replace overload 2mm Screener	1,630.00
K & Z Mechanical, Inc.	Service call from Richard to troubleshoot electrical motor failure 2mm Macer Acer	425.00
K & Z Mechanical, Inc.	Remove existing mixer motor, Replace and wire. Check rotation. Put mixer back on line.	475.00
K & Z Mechanical, Inc.	Digester membrane maintenance clean	3,515.00
LOWES	Supplies for temporary screening sock trial.	29.74
LOWES	Extension cord and plug end for digester pump	109.06
McGovern Environmental LLC	PS8 Vac truck pump and clean	4,500.00
STAPLES	Electronics dusters for influent VFD pump 3	37.99
THE HOME DEPOT	Supplies for temporary screening sock trial.	54.20
THE HOME DEPOT	Rodent control for the office	43.29
THE HOME DEPOT	Piping for digester return and temporary screening dewatering	332.94
THE HOME DEPOT	Sewage pump to pump 2mm screenings	438.96
THE HOME DEPOT	Supplies related to PS4 clog	87.13
THE HOME DEPOT	Materials for screening dumpster	195.32
THE HOME DEPOT	Materials for temporary screening trial	274.70
TRACTOR SUPPLY	Containment for belt filter press	89.99
United Rentals North America Inc	Dewatering dumpster rental June, drop off, liners, rental protection	2,277.38
USA BLUE BOOK	Chart recorder pen's	171.08
USA BLUE BOOK	(2) 2-inch pumps and 120 feet of 2-inch suction hose	1,715.12
USA BLUE BOOK	Thermometers for lab sample refrigerators, compliance	284.72
USA Bluebook	Lift Station Chart Paper	138.58
Xylem Dewatering Solutions, Inc.	Bypass pump rental for PS4	1,298.33

Health & Safety

Inframark Training and Presentations

- Cyber Security
- Machine Guarding
- PAUSE Refresher

Personnel

Name	Title	DE Certification
Jerry Shupe Jr.	Regional VP	NA
Michael Wolgemuth	Regional Manager	DE Class IV WW
Richard Plack	Project Manager	DE Class IV WW
Paul Gunderson	Lead Operator	DE Class IV WW
David Sylvester	Operator II	NA
Nick Karpin	Maintenance Technician II	NA
Loran George	PT Operator III	DE Class IV WW
Paul Smith	Operator II	DE Class II WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- June County Flow Totals
- Zenon InSight Report- 6-16-2021
- Zenon InSight Report- 6-30-2021
- Zenon InSight Report- 7-14-2021
- Pump Station Flow vs Rain Graphs
- May DMR